Remarks for Administrator Bolden

Africa Policy Group

June 22, 2016

- It's great to be here. Thanks to the Bridges Group and Vivian Derryck for inviting me, and to the Africare House for hosting me for this discussion.

- NASA's activities encompass a broad range of scientific and exploration objectives, ranging from aeronautics research to space and Earth science. The study of the Earth and its systems inform our understanding of past, present and future trends that may affect both our planet and its civilizations.

- Across the globe, and notably in Africa, data from Earth science satellites are being used in increasing numbers of ways to address a wide range of societal issues.

- Among the areas of interest are: urban planning, water resources management, food safety and security, health and air quality and disaster mitigation. From Earth observation to orbiting telescopes looking beyond our solar system, to missions with humans and robots throughout the solar system – all give us the technologies and experience that translate to tangible benefits here on Earth.

- Currently, NASA has active agreements with 28 African nations. The majority of these agreements are in support of an international science and education program called GLOBE, the Global Learning and Observations to Benefit the Environment Program. This NASA sponsored program provides grade level-appropriate activities and investigations about the environment developed by the scientific community and validated by teachers.

- GLOBE connects students, teachers and scientists from different parts of the world to conduct real, hands-on science about their local environment and puts it into a global perspective.

- Throughout the world, space exploration and scientific discovery have the unique ability to inspire young people and attract them to the fields of science, technology, engineering and mathematics.

- About 18 months or so ago, I traveled to Addis Ababa to talk with senior officials at the African Union about NASA's interest in working with our partners in Africa and throughout the world to continue the quest for scientific discovery, to use Earth science data to address societal needs and motivate the students of today to carry on this important work into the future.

- While the AU and certain nations such as Ethiopia are considering space policy and objectives at the national and even trans-continent level, the excitement for space among young people is the most palpable.

- At the Lucy Academy, I spoke in a schoolyard with 11th and 12th graders who had the most rudimentary of facilities, yet demonstrated the robots they built, discussed their activities in the international science and education program called GLOBE and asked the most sophisticated questions about NASA's programs and objectives, even about NASA's views on the space accomplishments of Russia and China. These young people are ready to explore and to bring the benefits of space exploration home.

- Last summer I also had an opportunity to address over 100 young African leaders who were recipients of the Mandela Washington Fellowship, a key component of the White House's Young African Leaders Initiative. Their interest and excitement about NASA's future plans for space exploration and their understanding of the potential societal benefits that can be gained from the unique vantage point that space provides was truly a rewarding experience.

- I will be returning to Africa in just a couple of weeks, this time to West Africa. I'd like to spend a view minutes discussing a small but highly impactful Earth science program called SERVIR. Through a partnership with USAID, we have been working with regional institutions in East Africa, the Hindu-Kush Himalaya region and the Lower Mekong to build the capacity of decision makers and natural resource managers in the region to use and access NASA Earth science data.

- NASA scientists have worked with these three SERVIR hubs – in Nairobi, Kathmandu, and Bangkok – to develop over 70 tools to address our changing climate and how it affects disasters, water availability, agriculture, food security, biodiversity, health and more.

- This year, the fourth SERVIR hub will officially open in West Africa. I'll travel to Niamey, Niger, for the official "launch," to meet the leadership and kick off the technical work that will support the needs of West African nations. NASA just announced grants to support an "Applied Science Team" that will fund the development of new tools for end users in Burkina Faso, Ghana, Niger and Senegal.

- The SERVIR hubs pour through the vast amounts of data that are produced by our incredible fleet of Earth observation satellites, analyze and process that data and incorporate it into formats and products that are useful to policy makers.

- This allows them to consider such things as how best to respond to a natural disaster, or how to prevent the spread of a vector-borne disease.

- In addition to its role in facilitating the capabilities of local stakeholders, SERVIR has become an important network that links together people from different geographic regions and connects them in a special way as they look to understand and solve similar problems.

- But SERVIR isn't the only program that utilizes data from NASA satellites to address issues affecting daily life.

- NASA also provides crucial contributions to global food security efforts.

- Satellites like the Soil Moisture Active/Passive (*SMAP*), *LandSat*, *Terra* and *Aqua* provide critical food supply information to governments, international organizations and businesses. This information allows end users to better predict anomalous events like floods or droughts that can negatively affect crop supply and result in unstable markets.

- Our satellites allow the Group on Earth Observation, known as GEO, to create monthly crop reports across Africa and NASA scientists are working with partners in African countries to use our satellite imagery to produce early warning systems, even going so far as to customize them for specific crops.

- Additionally, NASA researchers have tracked and modeled vector-borne diseases like Malaria and Ebola in West Africa. Our scientists have contributed to disaster response and mitigation efforts across the continent.

- We have worked with local end users and governments and international groups to monitor wildlife and their habitats.

- NASA also works closely with the Committee on Earth Observation Satellites, or CEOS, to train practitioners how to use and access Earth Observation data. We have held training workshops in South Africa and Kenya, and are planning more across the continent.

- The International Space Station also is becoming a platform for Earth observation, through the *ISERV* test bed camera used by SERVIR end users, and other instruments including *ISS-RapidScat* to monitor ocean winds and the Cloud-Aerosol Transport System (*CATS*) to measure clouds and pollution. We like to say about the Station that we're working off the planet, for the planet.

- Apart from our satellites on orbit and our instruments on the ISS, we also fly airplanes outfitted with NASA Earth observation instruments all over the world. In fact, we recently completed an airborne campaign in Gabon to collect data on vegetation in the region. We've recently flown an airborne campaign in Namibia and later this year we will work with the Namibians to fly another campaign in their country.

- If any of you have children under the age of 16, then they have not been alive for one second in which there hasn't been a continuous human presence in orbit on the International Space Station. Put another way, all children under 16 have never known a time in which humans have not been orbiting our planet – they are the Space Generation or Mars Generation, as President Obama calls them.

- It's this group that will lead the way to Mars and beyond. When I travel to Niger next month, over half of that country's population falls into that category. With the right support that is a lot of potential future scientists and engineers.

- The opportunities for Africa in space are vast and just as there are varying degrees of capability and interest throughout this vast continent, there are varying degrees of NASA cooperation and lots of ideas for the future.

- NASA is continuing to support partnerships with other USG agencies whose mission includes capacity building, and promoting STEM education – through these partnerships NASA hopes that our Earth and space science data will be increasingly utilized throughout Africa and as such, we will be helping to build the next generation of explorers in Africa as throughout the world.

- My message wherever I travel is that at NASA, we pride ourselves in turning science fiction into science fact and making the impossible possible.

- We are embarked on an incredible journey unprecedented in human history and I want to ensure that our African partners have every opportunity possible to be a part of this endeavor.

- I welcome your questions.

- Thank you.